CLAIMS

1. A method for transmission of data packets in a packet-switched telecommunications system, the telecommunications protocol of which comprises a convergence protocol layer for converting user data packets into convergence protocol packets, and a link layer for transmitting convergence protocol packets as data units and for acknowledging the transmission, comprising

defining a data packet number for the convergence protocol packets to be sent by a counter,

transmitting the convergence protocol packets to be sent to the link layer for transmission,

defining a data packet number for received convergence protocol packets by the counter, and

acknowledging the received convergence protocol packets.

2. A method according to claim 1, wherein

a user data packet is received in the convergence protocol layer of the transmitter,

the user data packet is stored in a buffer and a convergence protocol packet number is defined for the user data packet as the initial value of the transmitter's counter,

the convergence protocol packet and the convergence protocol packet number linked therewith are transferred to the link layer and the value of the transmitter's counter is added by one,

the convergence protocol packet is transmitted from the transmitter's link layer without the convergence protocol packet number to the receiver's link layer,

the received convergence protocol packet is transferred from the receiver's link layer to the convergence protocol layer and the value of the receiver's counter is added by one,

an acknowledgement of reception of the convergence protocol packet is transmitted from the receiver's link layer to the transmitter's link layer, and

the user data packet is removed from the buffer in response to transmitting the acknowledgement of the reception of the convergence protocol packet to the transmitter's convergence protocol layer.

3. A method according to claim 2, wherein

the convergence protocol packet number defined by the transmitter's counter is added to a convergence protocol packet to be sent in the link layer at predetermined intervals in response to the link layer being unable to guarantee acknowledged transmission of the convergence protocol packets,

the value of the receiver's counter is compared with the convergence protocol packet number of the received convergence protocol packet, and

the value of the receiver's counter is updated to correspond to said convergence protocol packet number in response to the values being unequal.

4. A method according to claim 3, wherein

the convergence protocol packet number defined by the transmitter's counter is added to the convergence protocol packet to be sent in response to performance of a predetermined process of the telecommunications system, such as discard of a data packet or handover.

5. A method according to claim 3 or 4, wherein

unacknowledged user data packets are removed from the buffer in response to the fact that the receiver sends an acknowledgement to the transmitter of reception of a convergence protocol packet corresponding to the user data packet sent after the unacknowledged user data packets.

6. A method according to claim 3, wherein

the convergence protocol packet number defined by the transmitter's counter is added to the convergence protocol packet that is first in the transmitter's buffer in response to the fact that at least one unacknowledged user data packet has been removed from the transmitter's buffer after the maximum value of retransmissions defined in the link layer has been exceeded.

7. A method according to claim 1, wherein

said telecommunications system is a packet-switched mobile communication system, such as the UMTS or the GPRS system, which utilizes acknowledged transmission.

8. A method according to claim 7, wherein

the method is applied in handover between the UMTS and the GPRS.

9. A method according to claim 7, wherein

the method is applied in handover between radio network subsystems in the UMTS.

10. A packet-switched telecommunications system which comprises a terminal and a fixed network, which comprises a network element supporting

5    packet-switched data transmission, data packets being arranged to be sent between the terminal and the network element in the telecommunications system and the telecommunications protocol of the telecommunications system comprising a convergence protocol layer for converting user data packets into convergence protocol packets, and a link layer for transmitting convergence

10   protocol packets as data units and for acknowledging the transmission, wherein in the transmission of data packets between the terminal and the network element

a data packet number is arranged to be defined for the convergence protocol packets to be sent by means of a counter,

15   the convergence protocol packets to sent are arranged to be transmitted to the link layer for transmission,

the data packet number is arranged to be defined for received convergence protocol packets by the counter, and

received convergence protocol packets are arranged to be ac-

20   knowledged.

11. A telecommunications system according to claim 10, wherein

the transmitter's convergence protocol layer is arranged to receive a user data packet,

the user data packet is arranged to be stored in a buffer and a con-

25   vergence protocol packet number is arranged to be defined for the user data packet as the initial value of the transmitter's counter,

the convergence protocol packet and the convergence protocol packet number linked therewith are arranged to be transmitted to the link layer and one is to be added to the value of the transmitter's counter,

30   the convergence protocol packet is arranged to be sent from the transmitter's link layer to the receiver's link layer without the convergence protocol packet number,

the received convergence protocol packet is arranged to be transmitted from the receiver's link layer to the convergence protocol layer and one

35   is to be added to the value of the receiver's counter,

an acknowledgment of reception of the convergence protocol packet is arranged to be sent from the receiver's link layer to the transmitter's link layer, and

the user data packet is arranged to be removed from the buffer in response to the fact that the acknowledgement of the reception of the convergence protocol packet is transmitted to the transmitter's convergence protocol layer.

12. A telecommunications system according to claim 11, wherein

the convergence protocol packet data number defined by the transmitter's counter is arranged to be added to the convergence protocol packet to be sent at predetermined intervals in response to the link layer being unable to guarantee acknowledged transmission of convergence protocol packets,

the value of the receiver's counter is arranged to be comparable with the convergence protocol packet number of the received convergence protocol packet, and

the value of the receiver's counter is arranged to be updated to correspond to said convergence protocol packet number in response to the values being unequal.

13. A telecommunications system according to claim 12, wherein

the convergence protocol packet number defined by the transmitter's counter is arranged to be added to the convergence protocol packet to be sent in response to performance of a predetermined process of the telecommunications system, such as discard of a data packet or handover.

14. A telecommunications system according to claim 12 or 13, wherein

unacknowledged user data packets are arranged to be removed from the buffer in response to the fact that an acknowledgement is sent from the receiver to the transmitter of reception of a convergence protocol packet corresponding to the user data packet sent after the unacknowledged user data packets.

15. A telecommunications system according to claim 10, wherein

said telecommunications system is a packet-switched mobile communication system, such as the UMTS or the GPRS system, which utilizes acknowledged transmission.

16. A telecommunications system according to claim 15, wherein

the convergence protocol packet number is arranged to be defined by a counter in handover between the UMTS and the GPRS.

17. A telecommunications system according to claim 15, wherein the convergence protocol packet number is arranged to be defined

5   by a counter in handover between radio network subsystems in the UMTS.